WHAT IS CLAIMED IS:

1. A medical telemetry system for permitting the real-time monitoring of patients of a medical facility from a centralized monitoring station, comprising:

at least one monitoring station which displays the real-time physiologic data of the patients;

a plurality of battery-powered wireless remote telemeters, the remote telemeters attaching to respective patients and configured to collect and transmit physiologic data of the patients; and

a plurality of transceivers which communicate bi-directionally with the plurality of remote telemeters using a wireless time division multiple access (TDMA) protocol, the transceivers connected to the at least one monitoring station and being distributed throughout the medical facility such that different transceivers provide coverage for different areas of the medical facility, the transceivers configured to receive the physiologic data transmitted by the remote telemeters and to forward the physiologic data to the at least one monitoring station.

2. The medical telemetry system according to Claim 1, wherein the remote telemeters establish wireless connections with individual transceivers of the plurality of transceivers based on the locations of the respective patients within the medical facility.

3. The medical telemetry system according to Claim 1, wherein at least one of the remote telemeters connects to different transceivers of the plurality of transceivers as a respective patient moves through the medical facility.

4. The medical telemetry system according to Claim 3, wherein the at least one remote telemeter evaluates wireless link conditions offered by different transceivers as the respective patient moves through the medical facility, and connects to the different transceivers based at least upon the wireless link conditions.

5. The medical telemetry system according to Claim 3, wherein the at least one remote telemeter maintains wireless connections with at least two different transceivers at-a-time, and transmits the physiologic data of the respective patient to the at least two different transceivers to provide at least spacial diversity.

6. The medical telemetry system according to Claim 5, wherein the at least one remote telemeter transmits the physiologic data to the at least two different transceivers during different respective TDMA timeslots, to thereby additionally provide time diversity.

7. The medical telemetry system according to Claim 6, wherein the at least one remote telemeter transmits the physiologic data to the at least two different transceivers on different RF frequencies, the different RF frequencies spaced sufficiently apart to provide frequency diversity.

8. The medical telemetry system according to Claim 1, wherein at least some of the transceivers communicate with the remote telemeters on different RF frequency channels.

9. The medical telemetry system according to Claim 8, wherein at least two of the transceivers communicate with the remote telemeters on the same RF frequency channel.

10. The medical telemetry system according to Claim 9, wherein the at least two transceivers which communicate on the same RF frequency channel are sufficiently spaced apart to avoid interference with one another.

11. The medical telemetry system according to Claim 1, wherein at least some of the transceivers of the plurality of transceivers are synchronized with one another.

12. The medical telemetry system according to Claim 1, wherein different subsets of the plurality of transceivers are connected to respective concentrator computers, each concentrator computer receiving physiologic data from the respective subset of transceivers and forwarding the physiologic data to the at least one monitoring station.

13. The medical telemetry system according to Claim 12, wherein the concentrator computers are interconnected by a local area network.

14. The medical telemetry system according to Claim 13, wherein the local area network comprises a plurality of monitoring stations which display the real-time physiologic data of the patients.

15. The medical telemetry system according to Claim 1, wherein at least one of the transceivers broadcasts timeslot availability messages to the remote telemeters, the timeslot availability messages indicating available and unavailable TDMA timeslots for communicating with the at least one transceiver.

16. The medical telemetry system according to Claim 15, wherein different transceivers of the plurality broadcast timeslot availability messages to the remote telemeters on different RF frequencies.

17. The medical telemetry system according to Claim 1, wherein the plurality of transceivers communicate with the plurality of remote telemeters within the VHF medical telemetry band.

18. The medical telemetry system according to Claim 1, wherein at least one of the remote transceivers maintains wireless connections with multiple different remote telemeters at-a-time.

19. The medical telemetry system according to Claim 1, wherein at least one of the remote transceivers is positioned proximate to a known intermittent source of electromagnetic interference.

20. The medical telemetry system according to Claim 1, wherein the at least one remote transceiver is positioned within a patient X-ray room.

21. The medical telemetry system according to Claim 1, wherein at least some of the transceivers transmit patient location signals, and the remote telemeters use the patient location signals to determine locations of respective patients.

22. A method of transferring real-time physiologic data of a patient from a wireless remote telemeter which attaches to the patient to a centralized node so as to provide protection against multi-path interference, the method comprising:

positioning first and second transceivers within respective first and second patient areas of a medical facility, the patient areas being sufficiently close to one another so that the transceivers provide overlapping first and second coverage zones, each transceiver positioned remotely from and being connected to the centralized node;

transmitting a first data packet from the remote telemeter to the first transceiver during a first timeslot, the first data packet containing at least the real-time physiologic data;

transmitting a second data packet from the remote telemeter to the second transceiver during a second timeslot, the second data packet containing at least the real-time physiologic data;

forwarding the first and second data packets, respectively, from the first and second transceivers to the centralized node; and

selecting between the first and second data packets at the centralized node.

23. The method according to Claim 22, wherein the first and second data packets contain respective error detection codes, and the step of selecting comprises evaluating the error detection codes at the centralized node to determine whether the first and second data packets were successfully received by the first and second transceivers.

24. The method according to Claim 23, wherein the error detection codes comprise error correction codes.

25. The method according to Claim 22, wherein the step of transmitting the first data packet is performed on a first frequency channel and the step of transmitting the second data packet is performed on a second frequency channel, the first and second frequency channels sufficiently different to provide frequency diversity.

26. The method according to Claim 25, wherein the first and second frequency channels fall within the VHF medical telemetry band.

27. The method according to Claim 22, further comprising the step of sending either the first data packet or the second data packet from the centralized node to a patient monitoring station over a wired local area network.

28. The method according to Claim 22, wherein the step of positioning the first and second transceivers within respective patient areas comprises spacing the first and second transceivers apart from one another by a distance of at least 50 feet.

29. The method according to Claim 28, wherein the step of positioning the first and second transceivers within respective patient areas comprises spacing the first and second transceivers apart from one another by a distance which ranges between 50 and 75 feet.

30. The method according to Claim 28, wherein the step of positioning the first and second transceivers within respective patient areas comprises mounting the first and second transceivers to a ceiling.

31. The method according to Claim 22, further comprising:

positioning a third transceiver within a third patient area to provide a third coverage zone which overlaps with the first and second coverage zones, the third transceiver positioned remotely from and being connected to the centralized node; and

in response to patient movement away from the first patient area towards the third patient area, establishing a connection between the remote telemeter and the third transceiver and terminating a connection between the remote telemeter and the first transceiver.

32. The method according to Claim 31, wherein the step of establishing a connection with the third transceiver comprises sending a timeslot request message from the remote telemeter to the third transceiver.

33. The method according to Claim 31, wherein the step of establishing a connection with the third transceiver comprises:

broadcasting a timeslot availability message from the third transceiver, the timeslot availability message indicating available and unavailable timeslots for communicating with the third transceiver; and

receiving the timeslot availability message with the remote telemeter, and evaluating the timeslot availability message to identify an available timeslot.

34. The method according to Claim 31, wherein the first, second and third transceivers communicate with the remote telemeter on different respective frequency channels.

35. A remote telemeter for use in a medical telemetry system which supports the real-time monitoring of ambulatory patients, the telemetry system including a plurality of transceivers distributed throughout a medical facility such that different transceivers provide coverage for different areas of the medical facility, the plurality of transceivers being connected to at least one centralized monitoring station, different transceivers of the plurality operating on different radio frequency (RF) channels, the remote telemeter comprising:

a processor which receives and processes real-time physiologic data of a patient, the physiologic data measured by sensors which attach to the patient;

a battery-powered remote transceiver responsive to the processor to transmit the physiologic data of the patient to the transceivers in data packets, the remote transceiver switchable by the processor between the different RF channels to allow the data packets to selectively be transmitted to different transceivers; and

a control program executed by the processor to implement a wireless communications protocol in which the remote telemeter transmits data packets to different transceivers during different timeslots, the control program configured to maintain wireless connections with at least two different transceivers of the plurality at-a-time on at least two different RF channels, and to transmit like data packets to the at least two different transceivers to provide multiple simultaneous transmission paths for the transfer of the physiologic data between the remote telemeter and the centralized monitoring station.

36. The remote telemeter according to Claim 35, wherein the at least two different RF channels fall within the VHF medical telemetry band.

37. The remote telemeter according to Claim 35, wherein the control program implements a transceiver switch-over protocol wherein the remote telemeter connects to different transceivers of the plurality in response to movement of the patient throughout the medical facility.

38. The remote telemeter according to Claim 37, wherein the switch-over protocol switches between the transceivers based upon assessments of wireless links to individual transceivers of the plurality, the control program assessing a wireless link to a selected transceiver by monitoring a control signal transmitted by the selected transceiver and measuring a signal quality of the control signal.

39. The remote telemeter according to Claim 35, wherein the control program monitors patient location signals transmitted by the transceivers on different RF channels, and uses the patient location signals to estimate a current location of the patient within the medical facility.

40. The remote telemeter according to Claim 35, wherein the processor and remote transceiver are packaged within a housing which attaches to an ambulatory patient.

41. A communications system which supports the mobility of wireless communications devices throughout a building, comprising:

at least one centralized computer;

a plurality of RF transceivers connected to the at least one centralized computer, the RF transceivers distributed throughout the building such that different transceivers provide coverage for different regions of the building, at least some of the RF transceivers of the plurality transmitting and receiving data on different RF channels; and

a plurality of wireless communications devices which communicate bi-directionally with the at least one centralized computer via the plurality of RF transceivers, the plurality of wireless communications devices communicating with the RF transceivers using a wireless time division multiple access (TDMA) protocol, the wireless TDMA protocol including a switchover protocol in which the wireless communications devices connect to different RF transceivers of the plurality based on assessments of RF link conditions between individual wireless

communications devices and individual RF transceivers, the wireless TDMA protocol thereby supporting the mobility of the wireless communications devices between the different regions of the building.

42. The communications system according to Claim 41, wherein the assessments of the RF link conditions are made by the wireless communications devices.

43. The communications system according to Claim 41, wherein at least one of the wireless communications devices maintains respective wireless connections with at least two different RF transceivers of the plurality of RF transceivers at-a-time, and transmits like data packets to the centralized computer via each of the at least two different RF transceivers, and wherein the centralized computer selects between the like packets received from the different RF transceivers based upon error detection codes contained within the like packets.

44. The communications system according to Claim 43, wherein the at least one wireless communications device transmits the like packets to the at least two RF transceivers on different respective RF frequencies.

45. The communications system according to Claim 41, wherein the RF transceivers broadcast timeslot availability messages to the wireless communications devices, the timeslot availability messages indicating available and unavailable TDMA timeslots for communicating with the RF transceivers.

46. The communications system according to Claim 41, wherein at least some of the wireless communications devices are remote telemetry devices which collect and transmit physiologic data of respective patients.

47. A method of transferring data from a wireless communications device to a centralized node so as to provide protection against multi-path interference, the method comprising:

positioning first and second RF transceivers within respective first and second regions, the regions being sufficiently close to one another so that the transceivers provide overlapping first and second coverage zones, each transceiver positioned remotely from the centralized node;

transmitting a first data packet from the wireless communications device to the first transceiver during a first timeslot;

transmitting a second data packet from the wireless communications device to the second transceiver during a second timeslot, the second data packet containing identical data to the first data packet;

forwarding the first and second data packets, respectively, from the first and second transceivers to the centralized node; and

selecting between the first and second data packets at the centralized node.

48. The method according to Claim 47, wherein the first and second data packets contain respective error detection codes, and the step of selecting comprises evaluating the error detection codes at the centralized node to determine whether the first and second data packets were successfully received by the first and second transceivers.

49. The method according to Claim 48, wherein the error detection codes comprise error correction codes.

50. The method according to Claim 47, wherein the step of transmitting the first data packet is performed on a first frequency channel and the step of transmitting the second data packet is performed on a second frequency channel, the first and second frequency channels sufficiently different to provide frequency diversity.

51. The method according to Claim 47, further comprising the step of broadcasting either the first data packet or the second data packet from the centralized node over a wired local area network.

52. The method according to Claim 47, wherein the step of positioning the first and second transceivers within respective regions comprises spacing the first and second transceivers apart from one another by a distance of at least 50 feet.

53. The method according to Claim 47, further comprising:

positioning a third transceiver within a third region to provide a third coverage zone which overlaps with the first and second coverage zones, the third transceiver positioned remotely from the centralized node; and

in response movement of the wireless communications device away from the first region towards the third region, establishing a connection between the wireless communications device and the third transceiver and terminating a connection between the wireless communications device and the first transceiver.

54. The method according to Claim 53, wherein the step of establishing a connection with the third transceiver comprises sending a timeslot request message from the wireless communications device to the third transceiver.

55. The method according to Claim 53, wherein the step of establishing a connection with the third transceiver comprises:

broadcasting a timeslot availability message from the third transceiver, the timeslot availability message indicating available and unavailable timeslots for communicating with the third transceiver; and

receiving the timeslot availability message with the wireless communications device and evaluating the timeslot availability message to identify an available timeslot.

56. The method according to Claim 53, wherein the first, second and third transceivers communicate with the wireless communications device on different respective frequency channels.